## Remarks

Reconsideration of this application is requested. By this amendment, claims 51, 55-57, 59, 62, and 65-67 have been amended and claims 73-84 have been added. Accordingly, claims 1-37 and 40-84 are in the Application. Applicant submits that no new matter has been added.

The most recent Office action mailed November 12, 2003 was in response to Applicant's response dated August 12, 2003. Applicant's mailed a response on November 4, 2003 that added new claims and amended some of the claims. It appears that the Examiner did not enter Applicant's response dated November 4, 2003 prior to mailing the most recent Office action. This response will show changes to the claims made relative to the previous entered amendment dated August 12, 2003.

## Objection to Claim 51

Claim 51 was amended to fix a typographical error. It is believed that this amendment overcomes the objection.

## Response to 35 U.S.C. §103 Rejections

The Office action rejects claims 1, 3, 4, 6-11, 14-23, 25-31, 33-37, and 40-72 under 35 U.S.C. §103(a) as being unpatentable over Kitagawa (EP Patent Application No. 0 702 305 A1) in view of Royer Jr. et al. (U.S. Patent Publication

No. 2003/0061436 A1). Applicant respectfully traverses this rejection in view of the remarks that follow.

In Applicant's prior response dated August 12, 2003, Applicant attempted to disqualify the Royer Jr. et al. reference using the provisions of 35 U.S.C. § 103(c), however, the Office action stated that the attempted 35 U.S.C. § 103 disqualification was not proper because it did not include the key phrase "at the time the invention was made." Accordingly, to remedy this, it is respectfully pointed out that Royer Jr. et al. and the invention claimed in the present Application (S/N 09/981,620) were both subject to an obligation of assignment to Intel Corporation at the time the invention of Application 09/981,620 was made. Accordingly, the provisions of 35 U.S.C. § 103(c) are believed to apply and Royer Jr. et al. is disqualified as prior art.

The Office action rejects claims 1, 3, 4, 6-11, 14-23, 25-31, 33-37, and 40-72 under 35 U.S.C. §103(a) as being unpatentable over Kitagawa (EP Patent Application No. 0 702 305 A1) in view of Nordal et al. (U.S. Patent Publication No. 2002/0160116 A1). Applicant respectfully traverses this rejection in view of the amendments above and the remarks that follow.

**Office action has not established a prima facie case of obviousness**

It is well established that in order to establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations (see e.g., M.P.E.P. §2142) . In addition, a prima facie showing of obviousness may only be established if there is a clear

suggestion from or in the prior art to make the modifications proposed by the Examiner. See Gillette Co. v. S.C. Johnson & Son, Inc. 919 F. 2d 720 (Fed Cir. 1990). In addition, Applicant respectfully points out that the suggestion or motivation to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicant's disclosure. It is improper to rely on the teachings of Applicant's specification as a basis for combining the cited documents of Kitagawa and Nordal et al.

It is respectfully submitted that there is no suggestion or motivation in the prior art to combine the cited documents as suggested by the Examiner. Therefore, the Office action has failed to establish a prima facie of obviousness.

The Office action states that Kitagawa does not preclude the use of any type of memory as long as it is nonvolatile and not a rotating disk. In addition, the Office action states that Kitagawa's silence on any particular type of memory required for his nonvolatile memory unit (other than a disk) would indicate to the skilled artisan that any type of nonvolatile memory (other than a disk) would be acceptable in his device, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a polymer ferroelectric memory for the design benefits that it provides.

First, Applicant points out that Kitagawa is not silent on a particular type of memory. Rather, Kitagawa discusses that nonvolatile memory 16 may include a flash memory or a random access memory having a back-up battery.

Second, Applicant's disagree that one of ordinary skill would conclude that any type of nonvolatile memory would be acceptable for use in the apparatus

shown in FIG. 1 of Kitagawa. Kitagawa does not state that any type of nonvolatile memory would be acceptable, and as discussed above, provides two specific examples of a nonvolatile memory. In addition, Applicant's respectfully submit that there are many different nonvolatile memory technologies and many tradeoffs between these memory technologies in terms of their attributes, e.g., cost, size, density or storage capacity, manufacturability, power consumption, access time, cycling characteristics, etc. Applicant's assert that there is nothing in the prior art to suggest or motivate one of ordinary skill to use the memory discussed in Nordal et al. in the apparatus discussed in Kitagawa. For example, there is nothing in Nordal et al. to suggest that a ferroelectric or polymer memory may be suitable as part of a disk memory apparatus.

Pointing out that the prior art is silent or does not preclude the use of any particular type of memory does not provide the requisite suggestion or motivation. Applicant's assert that the Office action has used hindsight to make its obviousness determination. That is, the suggestion for using a polymer or ferroelectric memory as claimed in Applicant's claims may only be found in Applicant's application. As is well understood, the use of hindsight is improper to make a determination of obviousness.

Thus, it is respectfully submitted that there is no suggestion or motivation in the prior art to combined the cited documents of Kitagawa and Nordal et al. as suggested by the Examiner. Therefore, the Office action has failed to establish a prima facie of obviousness.

Since the Office action has not established a prima facie case of obviousness for the reasons stated above, the rejection of claims 1, 8, 21, 26, 28, 40, 46, 52, 55, 58, 61, 64, and 70 should be withdrawn and it is believed that these claims are in condition for allowance.

In addition, the Office action has not shown how all the limitations of claims 1, 8, 21, 26, 28, 40, 46, 52, 55, 58, 61, 64, and 70 are taught or suggested in the cited documents. For example, the Office action has not shown how Kitagawa teaches writing data from a non-volatile cache memory to store in a disk memory in response to a cache read miss as recited in Applicant's claim 52. Since the citied documents do not teach or suggest all the limitations of claim 52, claim 52 is believed to be allowable.

The Office action stated that new claims 52-72 were presented without their particular novelty being pointed out. Accordingly, Applicant's will point out how claims 52-72 are allowable in view of the cited documents.

As discussed above, Applicant's claim 52 recites writing data from a non-volatile cache memory to store in a disk memory in response to a cache read miss. This limitation of Applicant's claim 52 is not taught or suggested by the cited documents. Applicant's claim 55 recites writing data from a polymer cache memory to a disk memory. This limitation of Applicant's claim 55 is not taught or suggested by the cited documents. Applicant's claim 58 recites, among other things, writing the data associated with the at least two write requests to the disk memory in response to a cache read miss. At least this limitation of Applicant's claim 58 is not taught or suggested by the cited documents.

Applicant's claim 61 recites queuing all write requests to write data to a disk memory using a non-volatile memory if the disk memory is spun down. This limitation of Applicant's claim 61 is not taught or suggested by the cited documents. Applicant's claim 64 recites spinning up a disk memory only in response to a cache read miss. This limitation of Applicant's claim 64 is not taught or suggested by the cited documents. Applicant's claim 66 recites prefetching data from a disk memory to a polymer memory. This limitation of Applicant's claim 66 is not taught or suggested by the cited documents. Applicant's claim 70 recites caching data associated with a multimedia sequential stream in a ferroelectric memory. This limitation of Applicant's claim 70 is not taught or suggested by the cited documents.

Since the cited documents do not teach all the limitations of Applicant's claims 52, 55, 58, 61, 64, 66, and 70, it is believed that the rejection of these claims should be withdrawn and that these claims are in condition for allowance.

Claims 2-7 depend from claim 1 and are believed to be allowable for the same reasons as claim 1. Claims 9-20 depend either directly or indirectly from claim 8 and are believed to be allowable for the same reasons as claim 8. Claims 22-25 depend either directly or indirectly from claim 21 and are believed to be allowable for the same reasons as claim 21. Claim 27 depends from claim 26 and is believed to be allowable for the same reasons as claim 26. Claims 29-37 depend either directly or indirectly from claim 28 and are believed to be allowable for the same reasons as claim 28. Claims 41-45 depend either directly or indirectly from claim 40 and are believed to be allowable for the same reasons as

claim 40. Claims 47-51 depend either directly or indirectly from claim 46 and are believed to be allowable for the same reasons as claim 46. Claims 53 and 54 depend from claim 52 and are believed to be allowable for the same reasons as claim 52. Claims 56 and 57 depend from claim 55 and are believed to be allowable for the same reasons as claim 55. Claims 59 and 60 depend either directly or indirectly from claim 58 and are believed to be allowable for the same reasons as claim 58. Claims 62 and 63 depend from claim 61 and are believed to be allowable for the same reasons as claim 61. Claim 65 depends from claim 64 and is believed to be allowable for the same reasons as claim 64. Claims 67-69 depend either directly or indirectly from claim 66 and are believed to be allowable for the same reasons as claim 69. Claims 71 and 72 depend either directly or indirectly from claim 70 and are believed to be allowable for the same reasons as claim 70.

**New Claims**

As indicated above, claims 73-84 have been added. Applicant submits that no new matter has been added.

Claims 73-74 are believed to be allowable. Applicant's claim 73 recites, among other things, a cache memory, wherein the cache memory is a non-volatile polymer memory. At least this limitation of Applicant's claim 73 is not taught or suggested by the cited documents. Applicant's claim 75 recites, among other things, satisfying the read request from data in the polymer cache, if the data is located in the polymer cache memory. At least this limitation of Applicant's claim

75 is not taught or suggested by the cited documents. Applicant's claim 80 recites a non-volatile cache memory to cache data for a hard disk, wherein the non-volatile cache memory is a polymer memory. This limitation of Applicant's claim 80 is not taught or suggested by the cited documents.

## Conclusion

In view of all of the above, it is believed that Applicant's claims are allowable, and the case is in condition for allowance, which action is earnestly solicited. Reconsideration of the rejections and objections is respectfully requested.

Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #50-0221.

If the Examiner believes that there are any informalities that can be corrected by an Examiner's amendment, a telephone call to the undersigned at (480) 552-0624 is respectfully solicited.

Respectfully submitted,
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